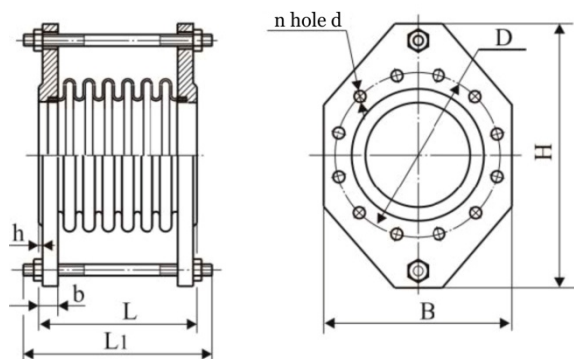


# Lateral expansion joints

## Expansion joints, CΦH type



### CΦH type

CΦH type axial, lateral expansion joints with flanges. These expansion joints can be installed directly in pipelines transferring (delivery and potable) water with a temperature up to 150 °C and at a velocity up to 8 m/s, oil and oil products with a temperature up to 450 °C and at a velocity up to 8 m/s, as well as steam and gaseous media not causing corrosion to the expansion joint material, with a temperature up to 500 °C and at a velocity up to 20 m/s.

Table 24\*

Serial product range\*\*

Reference designation	Nominal pressure, PN, MPa (kgf/cm <sup>2</sup> )	Nominal diameter, DN, mm	Dimensions, mm									n	Lateral movement amplitude, ±δ, mm, at an operation time of 5000 cycles	Angular travel amplitude, ±γ, degr., at an operation time of 5000 cycles	Stiffness at lateral movement C <sub>δ</sub> , kN/m	Stiffness at angular movement, C <sub>γ</sub> , N⊙m/degr.	Weight, kg
			D	d	L	L <sub>1</sub>	B	b	H	h							
CΦH.T11-6.3-250	0.63 (6.3)	250	335	18	280	390	370	30	490	3	12	7	10	553	26.0	50.0	
CΦH.T11-10-80	1.0 (10)	80	160	18	204	280	195	25	270	3	4	7	5	190	6.7	17.5	
CΦH.T11-10-100		100	180	18	230	310	215	25	300	3	8	7	5	200	8.3	20.5	
CΦH.T11-10-125		125	210	18	264	365	245	30	332	3	8	7	5	220	11.0	24.5	
CΦH.T11-10-150		150	240	22	274	375	280	30	368	3	8	7	5	250	14.0	28.6	

**Note:** In case of simultaneous action of shear forces and bending moments on an expansion joint, calculation of permissible amplitudes of the lateral and angular movement of the expansion joint shall be made according to the formula:

$$[\delta], [\gamma] \leq 1$$

where: [δ], [γ] – permissible lateral and angular movement amplitudes, accordingly, at a simultaneous loading with all the types of travel;

δ, γ – maximum lateral and angular travel amplitudes given in the Table.

\* The parameters of expansion joints given in the Table are for reference only; for precise product performance please contact the factory's technical specialists;

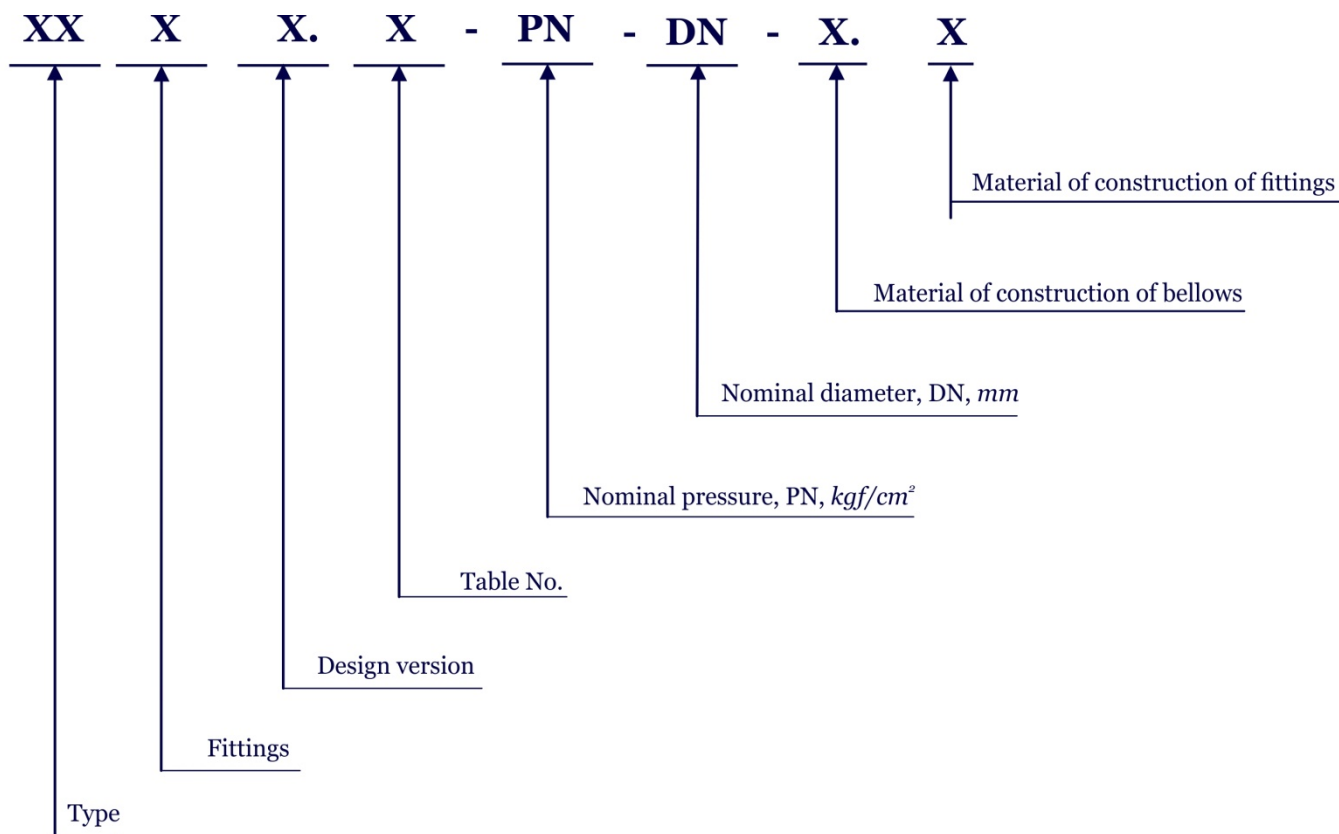
\*\* The scientific, material and technical facilities, as well as testing equipment of the factory make it possible to supply both serial products and customized products (designed and manufactured according to the customer's ToR).

# Reference designation of general purpose industrial grade angular expansion joints as per the ИРНС.300260.046ТУ specification

The reference designation of expansion joints consists of symbols and values of the main parameters:

Reference designation of expansion joint types and versions					
Type	Symbol	Fittings	Symbol	Design version	Symbol
Angular, single-plane	ИО	Weld branch pipe (on both sides)	И	Basic (bellows + 2 branch pipes or flanges)	Н
Angular, space	ИИИ	Flange (on both sides)	Φ	With a guide branch pipe	Г
Lateral, space	СИ	Flange on one side, weld branch pipe on the other side	Д	Enclosed	К
Lateral/angular					
Lateral, single-plane	СО	Weld branch pipe on one side, weld branch on the other side	ОИ	With a guide branch pipe and enclosed	М
Balanced, universal	РУ				

## Expansion joint reference designation diagram



Depending on the operating conditions, the material of construction of expansion joints shall be specified at order placement in accordance with the tables below:

Bellows		
Design version	Material grade	Permissible operating temperature K (°C)
1	– Exterior layers (on the outside) and interior layers (on the side of the handled medium), steel grade 05X18H10T (08X18H10T or 12X18H10T) as per GOST 5632; – Intermediate layers, steel grade 08кп (08пс or 08ю) as per GOST 9045.	253 to 423 (–20 to 150)
2	– All layers, steel grade 05X18H10T (08X18H10T or 12X18H10T) as per GOST 5632;	20 to 773 (–253 to 500)
3	– All layers, steel grade 10X17H13M2T as per GOST 5632	20 to 773 (–253 to 500)

Fittings		
Design version	Material grade	Permissible operating temperature K (°C)
1	Steel grade 20 as per GOST 1050	253 to 698 (–20 to 425)
2	Steel grade 17Г1С as per GOST 19281	233 to 748 (–40 to 475)
3	Steel grade 09Г2С, 09Г2 as per GOST 19281	203 to 748 (–70 to 475)
4	Steel grade 08X18H10T, 12X18H10T as per GOST 5632	20 to 823 (–253 to 550)
5	Steel grade 10X17H13M2T as per GOST 5632	20 to 823 (–253 to 550)
6	Steel grade 15X5M as per GOST 20072	223 to 873 (–50 to 600)

#### Example of ordering information:

Example of ordering information and information to be included in other documentation on an angular space type expansion joint for welded attachment to a pipeline; nominal pressure, PN, 1.6 MPa (16 kgf/cm<sup>2</sup>); nominal diameter, DN, 500 mm; design version; material of bellows construction (all layers, steel grade 05X18H10T); material of construction of fittings (steel grade 20):

“Expansion joint ПППП.Т7-16-500-2.1 as per ИЯНШ.300260.046 ТУ”.

Basic parameters and characteristics of handled media of the products as per ИЯНШ.300260.046ТУ

Handled media	Handled medium temperature, max., K (°C)	Handled medium velocity, m/s
Fresh delivery water, potable water, crude oil, oil products	723 (450)	8 maximum
Steam, natural gas, gaseous media not causing corrosion to expansion joint material	773 (500)	80 maximum
<b>Note:</b> <ol style="list-style-type: none"> <li>The permissible content of chloride ions in fresh water, the handled medium for expansion joints to be installed in heating networks, shall not exceed 250 mg/l.</li> <li>The expansion joints may be used for other handled media not capable of causing sulphide stress corrosion cracking.</li> </ol>		